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SEQUENCE LISTING

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<120> ORGANIC ANION TRANSPORTER AND GENE
CODING FOR THE SAME

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<140> 09/424,347

<141> 2000-07-18

<150> PCT/JP98/02171

<151> 1998-05-18

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 cccagccact gggctggggcc tggccca atg gcc ttt aat gac ctc ctg cag cag
 Met Ala Phe Asn Asp Leu Leu Gln Gln
 1 5

ctc ccc ctg ctc ctg atg gct tct cac aac acc ctg cag aac ttc act
 Leu Pro Leu Leu Leu Met Ala Ser His Asn Thr Leu Gln Asn Phe Thr
 30 35 40

gct gcc atc cct acc cac cac tgc cgc ccg cct gcc gat gcc aac ctc
Ala Ala Ile Pro Thr His His Cys Arg Pro Pro Ala Asp Ala Asn Leu
45 50 55

agc aac gac cgg ggg ctg gag gtc tgg ctg ccc cgg gac agg cag ggg
 Ser Lys Asn Gly Gly Leu Glu Val Trp Leu Pro Arg Asp Arg Gln Gly
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ttt ctc aat ggc aca gaa gcc aat ggc aca ggg gcc aca gag ccc tgc Phe Leu Asn Gly Thr Glu Ala Asn Gly Thr Gly Ala Thr Glu Pro Cys 90 95 100 105	582
acc gat ggc tgg atc tat gac aac agc acc ttc cca tct acc atc gtg Thr Asp Gly Trp Ile Tyr Asp Asn Ser Thr Phe Pro Ser Thr Ile Val 110 115 120	630
act gag tgg gac ctt gtg tgc tct cac agg gcc cta cgc cag ctg gcc Thr Glu Trp Asp Leu Val Cys Ser His Arg Ala Leu Arg Gln Leu Ala 125 130 135	678
cag tcc ttg tac atg gtg ggg gtg ctg ctc gga gcc atg gtg ttc ggc Gln Ser Leu Tyr Met Val Gly Val Leu Leu Gly Ala Met Val Phe Gly 140 145 150	726
tac ctt gca gac agg cta ggc cgc cggt aag gta ctc atc ttg aac tac Tyr Leu Ala Asp Arg Leu Gly Arg Arg Lys Val Leu Ile Leu Asn Tyr 155 160 165	774
ctg cag aca gct gtg tca ggg acc tgc gca gcc ttc gca ccc aac ttc Leu Gln Thr Ala Val Ser Gly Thr Cys Ala Ala Phe Ala Pro Asn Phe 170 175 180 185	822
ccc atc tac tgc gcc ttc cgg ctc tct tcg ggc atg gct ctg gct ggc Pro Ile Tyr Cys Ala Phe Arg Leu Leu Ser Gly Met Ala Leu Ala Gly 190 195 200	870
atc tcc ctc aac tgc atg aca ctg aat gtg gag tgg atg ccc att cac Ile Ser Leu Asn Cys Met Thr Leu Asn Val Glu Trp Met Pro Ile His 205 210 215	918
aca cgg gcc tgc gtg ggc acc ttg att ggc tat gtc tac agc ctg ggc Thr Arg Ala Cys Val Gly Thr Leu Ile Gly Tyr Val Tyr Ser Leu Gly 220 225 230	966
cag ttc ctc ctg gct ggt gtg gcc tac gct gtg ccc cac tgg cgc cac Gln Phe Leu Leu Ala Gly Val Ala Tyr Ala Val Pro His Trp Arg His 235 240 245	1014
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tgg ttc ttc att gag tcg gcc cgc tgg cac tcc tcc tcc ggg agg ctg Trp Phe Phe Ile Glu Ser Ala Arg Trp His Ser Ser Ser Gly Arg Leu 270 275 280	1110
gac ctc acc ctg agg gcc ctg cag aga gtc gcc cgg atc aat ggg aag Asp Leu Thr Leu Arg Ala Leu Gln Arg Val Ala Arg Ile Asn Gly Lys 285 290 295	1158
cggt gaa gaa gga gcc aaa ttg agt atg gag gta ctc cgg gcc agt ctg	1206

Arg Glu Glu Gly Ala Lys Leu Ser Met Glu Val Leu Arg Ala Ser Leu			
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Gln Lys Glu Leu Thr Met Gly Lys Gly Gln Ala Ser Ala Met Glu Leu			
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ctg cgc tgc ccc acc ctc cgc cac ctc ttc ctc tgc ctc tcc atg ctg		1302	
Leu Arg Cys Pro Thr Leu Arg His Leu Phe Leu Cys Leu Ser Met Leu			
330	335	340	345
tgg ttt gcc act agc ttt gca tac tat ggg ctg gtc atg gac ctg cag		1350	
Trp Phe Ala Thr Ser Phe Ala Tyr Tyr Gly Leu Val Met Asp Leu Gln			
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Gly Phe Gly Val Ser Ile Tyr Leu Ile Gln Val Ile Phe Gly Ala Val			
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Asp Leu Pro Ala Lys Leu Val Gly Phe Leu Val Ile Asn Ser Leu Gly			
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cgc cgg cct gcc cag atg gct gca ctg ctg gca ggc atc tgc atc		1494	
Arg Arg Pro Ala Gln Met Ala Ala Leu Leu Ala Gly Ile Cys Ile			
395	400	405	
ctg ctc aat ggg gtg ata ccc cag gac cag tcc att gtc cga acc tct		1542	
Leu Leu Asn Gly Val Ile Pro Gln Asp Gln Ser Ile Val Arg Thr Ser			
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Leu Ala Val Leu Gly Lys Gly Cys Leu Ala Ala Ser Phe Asn Cys Ile			
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Phe Leu Tyr Thr Gly Glu Leu Tyr Pro Thr Met Ile Arg Gln Thr Gly			
445	450	455	
atg gga atg ggc agc acc atg gcc cga gtg ggc agc atc gtg agc cca		1686	
Met Gly Met Gly Ser Thr Met Ala Arg Val Gly Ser Ile Val Ser Pro			
460	465	470	
ctg gtg agc atg act gcc gag ctc tac ccc tcc atg cct ctc ttc atc		1734	
Leu Val Ser Met Thr Ala Glu Leu Tyr Pro Ser Met Pro Leu Phe Ile			
475	480	485	
tac ggt gct gtt cct gtg gcc ggc agc gct gtc act gtc ctc ctg cca		1782	
Tyr Gly Ala Val Pro Val Ala Ala Ser Ala Val Thr Val Leu Leu Pro			
490	495	500	505
gag acc ctg ggc cag cca ctg cca gac acg gtg cag gac ctg gag agc		1830	
Glu Thr Leu Gly Gln Pro Leu Pro Asp Thr Val Gln Asp Leu Glu Ser			
510	515	520	
agg tgg gcc ccc act cag aaa gaa gca ggg ata tat ccc agg aaa ggg		1878	
Arg Trp Ala Pro Thr Gln Lys Glu Ala Gly Ile Tyr Pro Arg Lys Gly			

525

530

535

aaa cag acg cga cag caa gag cac cag aag tat atg gtc cca ctg
 Lys Gln Thr Arg Gln Gln Glu His Gln Lys Tyr Met Val Pro Leu
 540 545 550

1926

cag gcc tca gca caa gag aag aat gga ctc tgaggactga gaaggggcct
 Gln Ala Ser Ala Gln Glu Lys Asn Gly Leu
 555 560

1976

tacagaaccc taaagggagg gaaggtccta caggtctccg gccacccaca caaggaggag
 gaagaggaaa tggtgaccca agtgtgggg ttgtggttca gggaaagcatc ttcccagggg
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2036

2096

2156

2171

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 35 40 45
 Cys Arg Pro Pro Ala Asp Ala Asn Leu Ser Lys Asn Gly Gly Leu Glu
 50 55 60
 Val Trp Leu Pro Arg Asp Arg Gln Gly Gln Pro Glu Ser Cys Leu Arg
 65 70 75 80
 Phe Thr Ser Pro Gln Trp Gly Leu Pro Phe Leu Asn Gly Thr Glu Ala
 85 90 95
 Asn Gly Thr Gly Ala Thr Glu Pro Cys Thr Asp Gly Trp Ile Tyr Asp
 100 105 110
 Asn Ser Thr Phe Pro Ser Thr Ile Val Thr Glu Trp Asp Leu Val Cys
 115 120 125
 Ser His Arg Ala Leu Arg Gln Leu Ala Gln Ser Leu Tyr Met Val Gly
 130 135 140
 Val Leu Leu Gly Ala Met Val Phe Gly Tyr Leu Ala Asp Arg Leu Gly
 145 150 155 160
 Arg Arg Lys Val Leu Ile Leu Asn Tyr Leu Gln Thr Ala Val Ser Gly
 165 170 175
 Thr Cys Ala Ala Phe Ala Pro Asn Phe Pro Ile Tyr Cys Ala Phe Arg
 180 185 190
 Leu Leu Ser Gly Met Ala Leu Ala Gly Ile Ser Leu Asn Cys Met Thr
 195 200 205
 Leu Asn Val Glu Trp Met Pro Ile His Thr Arg Ala Cys Val Gly Thr
 210 215 220
 Leu Ile Gly Tyr Val Tyr Ser Leu Gly Gln Phe Leu Ala Gly Val
 225 230 235 240
 Ala Tyr Ala Val Pro His Trp Arg His Leu Gln Leu Leu Val Ser Ala
 245 250 255
 Pro Phe Phe Ala Phe Phe Ile Tyr Ser Trp Phe Phe Ile Glu Ser Ala
 260 265 270
 Arg Trp His Ser Ser Ser Gly Arg Leu Asp Leu Thr Leu Arg Ala Leu
 275 280 285

Gln Arg Val Ala Arg Ile Asn Gly Lys Arg Glu Glu Gly Ala Lys Leu
 290 295 300
 Ser Met Glu Val Leu Arg Ala Ser Leu Gln Lys Glu Leu Thr Met Gly
 305 310 315 320
 Lys Gly Gln Ala Ser Ala Met Glu Leu Leu Arg Cys Pro Thr Leu Arg
 325 330 335
 His Leu Phe Leu Cys Leu Ser Met Leu Trp Phe Ala Thr Ser Phe Ala
 340 345 350
 Tyr Tyr Gly Leu Val Met Asp Leu Gln Gly Phe Gly Val Ser Ile Tyr
 355 360 365
 Leu Ile Gln Val Ile Phe Gly Ala Val Asp Leu Pro Ala Lys Leu Val
 370 375 380
 Gly Phe Leu Val Ile Asn Ser Leu Gly Arg Arg Pro Ala Gln Met Ala
 385 390 395 400
 Ala Leu Leu Leu Ala Gly Ile Cys Ile Leu Leu Asn Gly Val Ile Pro
 405 410 415
 Gln Asp Gln Ser Ile Val Arg Thr Ser Leu Ala Val Leu Lys Gly
 420 425 430
 Cys Leu Ala Ala Ser Phe Asn Cys Ile Phe Leu Tyr Thr Gly Glu Leu
 435 440 445
 Tyr Pro Thr Met Ile Arg Gln Thr Gly Met Gly Met Gly Ser Thr Met
 450 455 460
 Ala Arg Val Gly Ser Ile Val Ser Pro Leu Val Ser Met Thr Ala Glu
 465 470 475 480
 Leu Tyr Pro Ser Met Pro Leu Phe Ile Tyr Gly Ala Val Pro Val Ala
 485 490 495
 Ala Ser Ala Val Thr Val Leu Leu Pro Glu Thr Leu Gly Gln Pro Leu
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 Pro Asp Thr Val Gln Asp Leu Glu Ser Arg Trp Ala Pro Thr Gln Lys
 515 520 525
 Glu Ala Gly Ile Tyr Pro Arg Lys Gly Lys Gln Thr Arg Gln Gln Gln
 530 535 540
 Glu His Gln Lys Tyr Met Val Pro Leu Gln Ala Ser Ala Gln Glu Lys
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 Asn Gly Leu

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 gcagctcgga ctcaagctccc ggagcaaccc agctgcggag gcaacgcgcag tgcgtctct 180
 ccagcgaagg acagcaggca ggcagacaga cagaggtcct gggactggaa ggcctcagcc 240
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 Met Ala Phe Asn Asp Leu Leu Gln Gln
 1 5

gtg ggg ggt gtc ggc cgc ttc cag cag atc cag gtc acc ctg gtg gtc
 Val Gly Gly Val Gly Arg Phe Gln Gln Ile Gln Val Thr Leu Val Val

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Leu Pro Leu Leu Leu Met Ala Ser His Asn Thr Leu Gln Asn Phe Thr				
30	35	40		
gct gcc atc cct acc cac cac tgc cgc ccg cct gcc gat gcc aac ctc				438
Ala Ala Ile Pro Thr His His Cys Arg Pro Pro Ala Asp Ala Asn Leu				
45	50	55		
agc aag aac ggg ggg ctg gag gtc tgg ctg ccc ccg gac agg cag ggg				486
Ser Lys Asn Gly Gly Leu Glu Val Trp Leu Pro Arg Asp Arg Gln Gly				
60	65	70		
cag cct gag tcc tgc ctc cgc ttc acc tcc ccg cag tgg gga ctg ccc				534
Gln Pro Glu Ser Cys Leu Arg Phe Thr Ser Pro Gln Trp Gly Leu Pro				
75	80	85		
ttt ctc aat ggc aca gaa gcc aat ggc aca ggg gcc aca gag ccc tgc				582
Phe Leu Asn Gly Thr Glu Ala Asn Gly Thr Gly Ala Thr Glu Pro Cys				
90	95	100	105	
acc gat ggc tgg atc tat gac aac agc acc ttc cca tct acc atc gtg				630
Thr Asp Gly Trp Ile Tyr Asp Asn Ser Thr Phe Pro Ser Thr Ile Val				
110	115	120		
act gag tgg gac ctt gtg tgc tct cac agg gcc cta cgc cag ctg gcc				678
Thr Glu Trp Asp Leu Val Cys Ser His Arg Ala Leu Arg Gln Leu Ala				
125	130	135		
cag tcc ttg tac atg gtg ggg gtg ctg ctc gga gcc atg gtg ttc ggc				726
Gln Ser Leu Tyr Met Val Gly Val Leu Leu Gly Ala Met Val Phe Gly				
140	145	150		
tac ctt gca gac agg cta ggc cgc ccg aag gta ctc atc ttg aac tac				774
Tyr Leu Ala Asp Arg Leu Gly Arg Arg Lys Val Leu Ile Leu Asn Tyr				
155	160	165		
ctg cag aca gct gtg tca ggg acc tgc gca gcc ttc gca ccc aac ttc				822
Leu Gln Thr Ala Val Ser Gly Thr Cys Ala Ala Phe Ala Pro Asn Phe				
170	175	180	185	
ccc atc tac tgc gcc ttc cgg ctc tcg ggc atg gct ctg gct ggc				870
Pro Ile Tyr Cys Ala Phe Arg Leu Leu Ser Gly Met Ala Leu Ala Gly				
190	195	200		
atc tcc ctc aac tgc atg aca ctg aat gtg gag tgg atg ccc att cac				918
Ile Ser Leu Asn Cys Met Thr Leu Asn Val Glu Trp Met Pro Ile His				
205	210	215		
aca cgg gcc tgc gtg ggc acc ttg att ggc tat gtc tac agc ctg ggc				966
Thr Arg Ala Cys Val Gly Thr Leu Ile Gly Tyr Val Tyr Ser Leu Gly				
220	225	230		
cag ttc ctc ctg gct ggt gtg gcc tac gct gtg ccc cac tgg cgc cac				1014
Gln Phe Leu Leu Ala Gly Val Ala Tyr Ala Val Pro His Trp Arg His				
235	240	245		

ctg cag cta ctg gtc tct gcg cct ttt gcc ttc ttc atc tac tcc Leu Gln Leu Leu Val Ser Ala Pro Phe Phe Ala Phe Phe Ile Tyr Ser 250 255 260 265	1062
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ctg cgc tgc ccc acc ctc cgc cac ctc ttc ctc tgc ctc tcc atg ctg Leu Arg Cys Pro Thr Leu Arg His Leu Phe Leu Cys Leu Ser Met Leu 330 335 340 345	1302
tgg ttt gcc act agc ttt gca tac tat ggg ctg gtc atg gac ctg cag Trp Phe Ala Thr Ser Phe Ala Tyr Tyr Gly Leu Val Met Asp Leu Gln 350 355 360	1350
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cgc cgg cct gcc cag atg gct gca ctg ctg gca ggc atc tgc atc Arg Arg Pro Ala Gln Met Ala Ala Leu Leu Ala Gly Ile Cys Ile 395 400 405	1494
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gag acc ctg ggc cag cca ctg cca gac acg gtg cag gac ctg gag agc Glu Thr Leu Gly Gln Pro Leu Pro Asp Thr Val Gln Asp Leu Glu Ser 510	515	520	1830
agg tgg gcc ccc act cag aaa gaa gca ggg ata tat ccc agg aaa ggg Arg Trp Ala Pro Thr Gln Lys Glu Ala Gly Ile Tyr Pro Arg Lys Gly 525	530	535	1878
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cag gcc tca gca caa gag aag aat gga ctc tgaggactga gaaggggcct Gln Ala Ser Ala Gln Glu Lys Asn Gly Leu 555	560		1976
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Ser His Asn Thr Leu Gln Asn Phe Thr Ala Ala Ile Pro Thr His His
      35          40          45
Cys Arg Pro Pro Ala Asp Ala Asn Leu Ser Lys Asn Gly Gly Leu Glu
      50          55          60
Val Trp Leu Pro Arg Asp Arg Gln Gly Gln Pro Glu Ser Cys Leu Arg
      65          70          75          80
Phe Thr Ser Pro Gln Trp Gly Leu Pro Phe Leu Asn Gly Thr Glu Ala
      85          90          95
Asn Gly Thr Gly Ala Thr Glu Pro Cys Thr Asp Gly Trp Ile Tyr Asp
      100         105         110
Asn Ser Thr Phe Pro Ser Thr Ile Val Thr Glu Trp Asp Leu Val Cys
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Ser His Arg Ala Leu Arg Gln Leu Ala Gln Ser Leu Tyr Met Val Gly
      130         135         140
Val Leu Leu Gly Ala Met Val Phe Gly Tyr Leu Ala Asp Arg Leu Gly
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Arg Arg Lys Val Leu Ile Leu Asn Tyr Leu Gln Thr Ala Val Ser Gly
      165         170         175

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Leu Leu Ser Gly Met Ala Leu Ala Gly Ile Ser Leu Asn Cys Met Thr
195 200 205
Leu Asn Val Glu Trp Met Pro Ile His Thr Arg Ala Cys Val Gly Thr
210 215 220
Leu Ile Gly Tyr Val Tyr Ser Leu Gly Gln Phe Leu Leu Ala Gly Val
225 230 235 240
Ala Tyr Ala Val Pro His Trp Arg His Leu Gln Leu Leu Val Ser Ala
245 250 255
Pro Phe Phe Ala Phe Phe Ile Tyr Ser Trp Phe Phe Ile Glu Ser Ala
260 265 270
Arg Trp His Ser Ser Gly Arg Leu Asp Leu Thr Leu Arg Ala Leu
275 280 285
Gln Arg Val Ala Arg Ile Asn Gly Lys Arg Glu Glu Gly Ala Lys Leu
290 295 300
Ser Met Glu Val Leu Arg Ala Ser Leu Gln Lys Glu Leu Thr Met Gly
305 310 315 320
Lys Gly Gln Ala Ser Ala Met Glu Leu Leu Arg Cys Pro Thr Leu Arg
325 330 335
His Leu Phe Leu Cys Leu Ser Met Leu Trp Phe Ala Thr Ser Phe Ala
340 345 350
Tyr Tyr Gly Leu Val Met Asp Leu Gln Gly Phe Gly Val Ser Ile Tyr
355 360 365
Leu Ile Gln Val Ile Phe Gly Ala Val Asp Leu Pro Ala Lys Leu Val
370 375 380
Gly Phe Leu Val Ile Asn Ser Leu Gly Arg Arg Pro Ala Gln Met Ala
385 390 395 400
Ala Leu Leu Leu Ala Gly Ile Cys Ile Leu Leu Asn Gly Val Ile Pro
405 410 415
Gln Asp Gln Ser Ile Val Arg Thr Ser Leu Ala Val Leu Gly Lys Gly
420 425 430
Cys Leu Ala Ala Ser Phe Asn Cys Ile Phe Leu Tyr Thr Gly Glu Leu
435 440 445
Tyr Pro Thr Met Ile Arg Gln Thr Gly Met Gly Ser Thr Met
450 455 460
Ala Arg Val Gly Ser Ile Val Ser Pro Leu Val Ser Met Thr Ala Glu
465 470 475 480
Leu Tyr Pro Ser Met Pro Leu Phe Ile Tyr Gly Ala Val Pro Val Ala
485 490 495
Ala Ser Ala Val Thr Val Leu Leu Pro Glu Thr Leu Gly Gln Pro Leu
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Pro Asp Thr Val Gln Asp Leu Glu Ser Arg Trp Ala Pro Thr Gln Lys
515 520 525
Glu Ala Gly Ile Tyr Pro Arg Lys Gly Lys Gln Thr Arg Gln Gln Gln
530 535 540
Glu His Gln Lys Tyr Met Val Pro Leu Gln Ala Ser Ala Gln Glu Lys
545 550 555 560
Asn Gly Leu